



THE CITY OF MARINE CITY – CALENDAR YEAR 2022 ANNUAL DRINKING WATER QUALITY REPORT

City of Marine City – 229 South Waters St. – Marine City, MI 48039 – 810.765.8087 – www.cityofmarinecity.org

RIGHT TO KNOW RULE

The City of Marine City provides your drinking water and is pleased to present you with this annual water quality report, in accordance with the regulations. Our goal is to provide you with a safe and dependable drinking water supply. This report will illustrate that we are achieving this goal.

MARINE CITY WATER FILTRATION PLANT

Public health protection is always a goal of water treatment plants, but in Marine City, the completion of the filtration plant was a testament to dedication. A small group of officials worked six years to get public approval for the plant, which would provide needed protection against waterborne diseases such as typhoid fever. Despite recurring outbreaks of typhoid, voters defeated three financing proposals for a plant, water tank, and the distribution system. The fourth time was a charm, however, and construction began in 1935. The entire project, which replaced the city's original 1885 pumping station, cost \$105,000.

Since its original construction in 1935, the Marine City water filtration plant has undergone two major upgrades. One in 1965 and another one in 2007. The facility is operated by fully trained operators all tested and certified by the Michigan Department of Environmental Quality (MDEQ). The Marine City water plant has a capacity of 2.0 million gallons per day. The plant provides conventional water treatment using chlorination, flocculation, sedimentation and rapid sand filtration. We carefully monitor and frequently test the water during processing to ensure a high-quality, safe product is delivered to your tap.

Water Supply is always important to growth of any region. Providing a safe, abundant, reliable supply of drinking water has helped the City of Marine City and adjacent townships develop tremendously since 1935. The American Water Works Association acknowledged this in 1992 by naming the Marine City treatment plant a historic landmark.

WHERE DOES YOUR WATER COME FROM?

Your drinking water is drawn from the St. Clair River, one of the most beautiful connecting waters of the Great Lakes, part of the World's largest freshwater system. The plant intake line is equipped with zebra mussel control to prevent these troublesome mollusks from obstructing the pipeline. To ensure a reliable supply

of water, the City has an emergency interconnection with the East China water supply.

DON'T FORGET TO USE YOUR WATER METER TO DETECT LEAKS!

A small leak, about the size of the head of a pin, dripping at one drop per second can add up to 7 gallons of water per day. A large leak, the kind most often found in toilets, can waste 200 gallons of water per day! Check your water meter when you suspect a leak. Make sure no water is being used inside or outside (no clothes washing filling, no shower running, no water outdoors, etc.).



Find your water meter and look at the dial. If you have a meter with a dial face, find the leak detector triangle on the meter dial. If all of your water sources are off and the leak detector is rotating, you may have a leak.

If you have a digital meter, (a rectangular box on the white dial face) look at the rectangular box with a flashlight. A faucet icon that flashes or stays on continually means that you have a leak.

HOW TO MONITOR YOUR WATER USAGE:

- 1) Read the odometer and write it down completely. Then write down the date you read it. After a period of time (we suggest 7 days) read the odometer again and write it down and write down the date.
- 2) Subtract the first reading from the second reading. This is your water use in gallons during the period.
- 3) Divide the water use in gallons by the number of days between readings. This is your average gallons per day during the period.

Page 2 - Definitions and Health Effects Language
Pages 3 & 4 - Test Results Tables
Page 5 - Contact Information

HEALTH AND SAFETY INFORMATION

The following information is mandatory language provided by the Environmental Protection Agency:

Drinking water, including bottled water, may be reasonably expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily pose a health risk. The sources of both tap and bottled drinking water include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive materials, and can also pick up substances resulting from animal or human activity.

Contaminants that may be present in source water include:

- Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- Inorganic Contaminants, such as salts and metals, which can be naturally-occurring or be the result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture and residential users.
- Radioactive contaminants, which are natural occurring or are the result of oil and gas production and mining activities.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also, come from gas stations, urban storm water runoff, and septic systems.

To ensure that tap water is safe, the Environmental Protection Agency (EPA) prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration establishes limits for contaminants in bottled water, which must provide the same protection for public health. All of these contaminants were below the level of concern in Marine City water.

Information for Vulnerable Populations: Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. Federal guidelines on appropriate means to lessen the risk of infection from cryptosporidium and other microbiological contaminants are available from EPA's Safe Drinking Water Hotline, 800.426.4791.

Information about lead: if present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Marine City is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has

been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

Definitions

- Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.
- NTU: Nephelometric Turbidity Unit
- N/A: Not applicable
- ND: not detectable at testing limit
- ppm: parts per million or milligrams per liter
- ppb: parts per billion or micrograms per liter
- ppt: parts per trillion or nanograms per liter
- pCi/l: picocuries per liter (a measure of radioactivity)
- Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

SOURCE WATER ASSESSMENT REPORT

The State of Michigan performed an assessment of our source water in 2003 to determine the susceptibility or the relative potential of contamination. The susceptibility rating is on a six-tiered scale from "very low" to "high" based primarily on geologic sensitivity, water chemistry and contaminant sources. The susceptibility of our source water is "high" given land uses and potential contaminant sources. Significant sources of contamination include commercial / industrial discharges, storm-sewer drainage and Urban / Agricultural runoff. More information from this report is available by contacting the Marine City Water Department.

MARINE CITY DRINKING WATER QUALITY DATA FOR 2022

The table below lists all the drinking water contaminants that we detected during the 2022 calendar year. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done January 1 - December 31, 2022. The State allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. All of the data is representative of the water quality, but some are more than one year old.

WATER TREATMENT PLANT TAP							
Regulated Contaminant	MCL, TT, or MRDL	MCLG or MRDLG	Level Detected	Range	Year Sampled	Violation	Typical Source of Contaminant
Fluoride (ppm)	4	4	0.29	0.0 – 1.18	2022	NO	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate (ppm)	10	10	0.29	N/A	2022	NO	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Alpha emitters (pCi/L)	15	0	1.3	1.3 ± 1.5	2020	NO	Erosion of natural deposits
Combined radium (pCi/L)	5	0	1.82	1.82 ± 0.76	2020	NO	Erosion of natural deposits
Turbidity ¹	Sample Date	MCLG	MCL/TT	Highest Result	Range	Violation	Typical Source of Contaminant
Filtered Water (NTU)	Daily	N/A	TT = 1	0.12	0.02–0.08	NO	Soil run-off
% of samples	Daily	N/A	100% <0.3 NTU	100.0 %	N/A	NO	Soil run-off
TOC ²	Sample Date	MCLG	MCL	Range		Violation	Typical Source of Contaminant
TOC (ppm)	Quarterly	N/A	TT	1.7 – 2.2		NO	Naturally present in the environment
DISTRIBUTION SYSTEM							
Regulated Contaminant	MCL, TT, or MRDL	MCLG or MRDLG	Level Detected	Range	Year Sampled	Violation Yes/No	Typical Source of Contaminant
TTHM Total Trihalomethanes (ppb)	80	N/A	43	N/A	2022	NO	Byproduct of drinking water disinfection
HAA5 Haloacetic Acids (ppb)	60	N/A	25	N/A	2022	NO	Byproduct of drinking water disinfection
Chlorine ³ (ppm)	4	4	1.13	0.62 - 1.54	2022	NO	Water additive used to control microbes
Total Coliform (total number or % of positive samples/month)	TT	N/A	0	N/A	2022	NO	Naturally present in the environment
<i>E. coli</i> in the distribution system (positive samples)	See <i>E. coli</i> note ⁴	0	0	N/A	2022	NO	Human and animal fecal waste
Inorganic Contaminant Subject to ALs	AL	MCLG	Your Water ⁵	Range of Results	Year Sampled	Number of Samples Above AL	Typical Source of Contaminant
Lead (ppb)	15	0	6	ND - 12	2020	0	Lead service lines, corrosion of household plumbing including fittings and fixtures; Erosion of natural deposits
Copper (ppm)	1.3	1.3	0.1	0.0036 - 0.069	2020	0	Corrosion of household plumbing systems; Erosion of natural deposits

Data Table Notes:

¹ Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system. Turbidity is monitored every 4 hours at the Water Treatment Plant Tap.

² The Total Organic Carbon (TOC) removal ratio is calculated as the ratio between the actual TOC removal and the TOC removal requirements. The TOC was measured quarterly, and our system met all TOC removal requirements set by the state.

³ The chlorine "Level Detected" was calculated using a running annual average.

⁴ E. coli MCL violation occurs if: (1) routine and repeat samples are total coliform-positive and either is E. coli-positive, or (2) the supply fails to take all required repeat samples following E. coli-positive routine sample, or (3) the supply fails to analyze total coliform-positive repeat sample for E. coli.

⁵ Ninety (90) percent of the samples collected were at or below the level reported for our water.

Additional Monitoring

Unregulated contaminants are those for which the USEPA has not established drinking water standards. Monitoring helps the USEPA determine where certain contaminants occur and whether regulation of those contaminants is needed. The City of Marine City tested a wide variety of unregulated contaminants in 2021. The unregulated contaminants test results are available to customers by contacting the Marine City Water Plant.

Unregulated Contaminant Name	Average Level Detected	Range	Year Sampled	Comments
Sodium (ppm)	7.0	N/A	2022	Results of monitoring are available upon request

Per- and polyfluoroalkyl substances (PFAS)							
Regulated Contaminant	MCL	MCLG	Level Detected	Range of Detection	Year Sampled	Violation Yes/No	Typical Sources of Contamination
Hexafluoropropylene oxide dimer acid (HFPO-DA) (ppt)	370	N/A	ND	ND	2022	NO	Discharge and waste from industrial facilities utilizing the Gen X chemical process
Perfluorobutane sulfonic acid (PFBS) (ppt)	420	N/A	ND	ND	2022	NO	Discharge and waste from industrial facilities; Stain-resistant treatments
Perfluorohexane sulfonic acid (PFHxS) (ppt)	51	N/A	ND	ND	2022	NO	Firefighting foam; Discharge and waste from industrial facilities
Perfluorohexanoic acid (PFHxA) (ppt)	400,000	N/A	ND	ND	2022	NO	Firefighting foam; Discharge and waste from industrial facilities
Perfluorononanoic acid (PFNA) (ppt)	6	N/A	ND	ND	2022	NO	Discharge and waste from industrial facilities; Breakdown of precursor compounds
Perfluorooctane sulfonic acid (PFOS) (ppt)	16	N/A	3	< 2 – 3	2022	NO	Firefighting foam; Discharge from electroplating facilities; Discharge and waste from industrial facilities
Perfluorooctanoic acid (PFOA) (ppt)	8	N/A	ND	ND	2022	NO	Discharge and waste from industrial facilities; Stain-resistant treatments

What are Per-and polyfluoroalkyl substances (PFAS) and why are they Harmful?

Per- and polyfluoroalkyl substances (PFAS), sometimes called PFCs, are a group of chemicals that are resistant to heat, water, and oil. PFAS have been classified by the United States Environmental Protection Agency (U.S. EPA) as an emerging contaminant on the national landscape. For decades, they have been used in many industrial applications and consumer products such as carpeting, waterproof clothing, upholstery, food paper wrappings, fire-fighting foams, and metal plating. They are still used today. PFAS have been found at low levels both in the environment and in blood samples from the general U.S. population.

These chemicals are persistent, which means they do not break down in the environment. They also bioaccumulate, meaning the amount builds up over time in the blood and organs. Although our understanding of these emerging contaminants is constantly evolving, elevated levels of PFAS have the potential to cause increased cholesterol, changes in the body's hormones and immune system, decreased fertility, and increased risk of certain cancers. Links to these health effects in humans are supported by epidemiologic studies and by laboratory studies in animal models.

PFAS Testing Performed on Your Water

The City of Marine City is pleased to inform you that in 2022 our water was tested quarterly for PFAS. One sample contained 3ppt PFOS, which is well below the MCL of 16ppt. All other sample results came back as "ND" which means the analyte was not detected.

In October 2019, the Michigan Department of Environment, Great Lakes, and Energy (EGLE) submitted draft PFAS drinking water rules to Governor Whitmer. The final rules took effect of August 3, 2020. These rules amend current drinking water rules by establishing maximum contaminant levels (MCLs) and sampling requirements for seven PFAS compounds, affecting approximately 2,700 water supplies in Michigan.

Who can I call if I have questions about PFAS in my drinking water?

If any resident has additional questions regarding this issue, the State of Michigan Environmental Assistance Center can be contacted at 800-662-9278. Representatives may be reached to assist with your questions Monday through Friday, 8:00 AM to 4:30 PM.

For more information, visit:

<http://www.michigan.gov/PFASDrinkingWaterRules>

Additional information about PFAS can be found by visiting: <http://www.michigan.gov/PFASResponse>

What other ways could I be exposed to PFOA, PFOS and other PFAS compounds?

PFAS are used in many consumer products. They are used in food packaging such as fast food wrappers and microwave popcorn bags; waterproof and stain resistant fabrics such as outdoor clothing, upholstery, and carpeting; nonstick coatings on cookware and cleaning supplies including some soaps and shampoos. People can be exposed to these chemicals in house dust, indoor and outdoor air, food, and drinking water. There is still uncertainty regarding these routes of exposure and more research is necessary.

Lead and Copper Service Lines

As of December 31, 2022, the City of Marine City had identified the materials for roughly 85 percent of its service lines, and currently has eight (8) known lead service lines. All eight (8) are scheduled for replacement. We will be working on completing the inventory of our service lines throughout 2023 and will report those findings on our 2023 CCR.

Public Participation

Interested citizens are welcome to attend City Commission meetings to hear more about the Marine City Water System. Regular City Commission meetings are held once a month at 7:00 PM on the third Thursdays of each month. The meetings are held at the Municipal Building, 260 S. Parker Street, Marine City, MI 48039 and are open to the public.

Questions or Comments

City Staff works year-round to provide quality water to residents and businesses. Monitoring results from early 2022 are available upon request. If you have any questions, comments, or would like to receive more specific information about the Marine City Water System, please feel free to call the Water treatment plant at (586) 255- 8212.